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ALMEMO® Output modules



ALMEMO® Output modules

A modern measuring instrument must be able to communicate with its environment, i.e. transfer its measured data to peripheral equipment, execute commands from a computer, trigger alarm signals, and respond to switching pulses.

To cover all possibilities while also keeping the hardware needed to a minimum all necessary interfaces have been integrated in our ALMEMO® output connector. This

concept allows the user - with one and the same ALMEMO® measuring instrument - to choose freely from a wide variety of output interfaces to best suit the particular task in hand.

For the purposes of connecting the modules virtually all ALMEMO® devices are equipped with two output sockets A1 and A2; these also allow the devices to participate in digital networking. The

output modules, just like the sensors, are detected automatically; no extra programming is required.

Please note that many ALMEMO® output modules can only be operated in conjunction with ALMEMO® devices version 6 and above (not 2390, 8390). Labeled V6 (device firmware update may be needed).

Describing all the many options provided by the ALMEMO® system with output modules would be beyond the scope of this catalog.

Please ask for our ALMEMO® Manual. It will provide you with valuable tips and a detailed description of our ALMEMO® output modules.

We shall of course be pleased to offer you competent advice and support to help you solve your particular measuring tasks. Or you can arrange a date for a demonstration. Our experts will be pleased to visit you - to introduce and explain the numerous application options that the ALMEMO® system offers.

ALMEMO® trigger cable ZA 1000 ET / ZA 1006 EK2



Technical Data

Trigger input	
ZA1000ET	Trigger variants can be programmed with key
ZA1006EK2	For external zero-potential contact (not electrically isolated) and for external voltage 4 to 30 VDC (optocoupler), trigger variants can be programmed
Current consumption	approx. 3 mA
Cable length	1.5 meters
Connection	(see variants)

Variants

- ALMEMO® trigger cable, V5 / V6, with 1 key
- ALMEMO® trigger cable, V5 / V6, with 1 trigger input for external voltage, with 2 banana plugs
- ALMEMO® trigger cable, V6, with 2 trigger inputs for external contacts or voltages, with clamp connector

Order no.
ZA1000ET
ZA1000EK
ZA1006EK2

ALMEMO® trigger / relay cable V6 ZA 1006 EKG / ETG



Technical Data:

Trigger input	For external zero-potential contact (not electrically isolated) or for external voltage 4 to 30 VDC (optocoupler) New Trigger variants - can be programmed (V6 only)
Relay	Normally open contact (semiconductor relay) New Can also be programmed as inverted (V6 only) Load capacity: 50 VDC, 0.5 A, 1 ohm
Current consumption	approx. 3 mA
Cable length	1.5 meters
Connection	Clamp connector

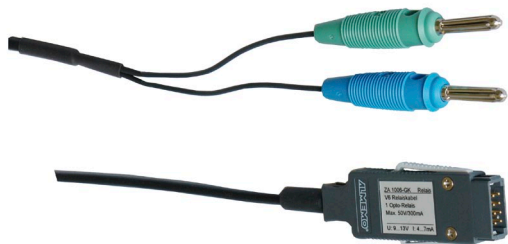
Variants

- ALMEMO® trigger / relay cable, V6, with 2 trigger inputs (programmable trigger variant) for external voltages and 2 normally open contacts
- ALMEMO® trigger / relay cable, V6, with 2 trigger inputs (programmable trigger variant) for external zero-potential contacts and 2 normally open contacts
- for ALMEMO® devices, version V5
- ALMEMO® trigger / relay cable, V5, with 1 trigger input (Start / Stop only) for 1 external zero-potential contact or for voltage and 2 normally open contacts

Order no.
ZA1006EKG
ZA1006ETG
ZA1000EGK

ALMEMO® Output modules

ALMEMO® relay cable, V6, ZA 1006 GK and electrical socket relay adapter, ZB 2280 RA



Technical Data

Relay cable, V6, type ZA 1006 GK		
Relay	New	Normally open (semiconductor relay) Can also be programmed as inverted (V6 only) Load capacity 50 VDC, 0.5 A, 1 ohm
Current consumption	approx. 3 mA	
Cable length	1.5 meters	
Connection	Banana plug	

Variants

Order no.

ALMEMO® relay cable, V6,
with 1 normally open contact
for ALMEMO® devices, version V5
ALMEMO® relay cable, V5,
with 1 normally open contact

ZA1006GK

ZA1000GK



Technical Data

Relay adapter ZB2280RA	
Control input	for optocoupler output or switching contact R <10 kW
Output	Electrical safety socket, mechanical relay, load capacity 250 V, 6 A
Switching status	OFF idle; ON alarm

Variants

Order no.

Relay adapter for switching mains supplied devices
combined with relay cable ZA1006GK/ZA1000GK

ZB2280RA

ALMEMO® analog output cable ZA 1601 RK



- Measured values can be recorded using a chart recorder or a similar output device.
- A signal converter is integrated in the connector.
- The device signal is converted into a voltage corresponding to the linearized measured value.
- To obtain a high response speed a conversion rate of 10 mops can be set in the ALMEMO® device.
- The output signal can be scaled as required..

Technical Data:

Output voltage	-1.250 to 2.000 V, not electr. isolated
Gain	0.1 mV / digit
Load	>100 kW
Accuracy	±0.1% ± 6 digits
Temperature drift	1 digit / K
Time constant	100 ms
Current consumption	approx. 3 mA
Cable length	1.5 meters

Variants

Analog output cable -1.250 to 2.000 V (0.1 mV / digit) not electrically isolated

Order no.

ZA1601RK

ALMEMO® relay trigger adapter, analog ZA 8006 RTA3 for connecting to ALMEMO® devices



- Universal trigger output interface for connecting to output sockets on ALMEMO® devices - from version V6 up (not 2390, 8390). device firmware update may be needed.
- Up to 10 peripheral elements (relays, trigger inputs, analog outputs) each with individually configurable function
- Relay functions, total alarm, assignment to particular limit values, or addressing via interface
- Integrated alarm signaling device can be assigned to all relay functions.
- Inverse relay addressing for alarm in the event of power failure
- Programmable messages to be issued when relays are activated
- Comprehensive trigger features with the aid of command macros, addressing via 2 keys or electrical signals
- Either 2 or 4 analog outputs (10 V or 20 mA) can be assigned to any measuring channels, scalable sub-areas, or alternatively addressing via interface.
- **New:** Analog output type 10 V or 20 mA (programmable)
- All programming and peripheral states shown on illuminated graphics display

ZA 8006 RTA3 V6.01	ZA 8006 RTA3 Socket: A2
All Ports	Port: 0 1 2 3 4 5 6 7 8 9
Single Ports	Type: R R R R - - A A T T
Device Configuration	Activ: ✓ ✓ ✓ ✓
Messages	x923: 1 / 1 U A
F ▶ *ON	TR8 MENU P *ON TR9

menu selection

all peripherals

ZA 8006 RTA3 Socket: A2	Messages: 2
Port: 0 Adr: 20	Port: 0 3
Relay: Normally open 0.5A	Port 3:
-8: external steered inv	Furnace overheated
State: active	Tel: 08024-3007-99
Contact: x2-x3 open	OFF P *ON
TR8 MENU P *ON TR9	

relais

messages

- Keypad for selecting menu and port

ZA 8006 RTA3 Socket: A2	ZA 8006 RTA3 Socket: A2
Port: 8 Adr: 28	Port: 6 Adr: 26
Trigger: Key + Optokoppler	AnalogOutput: 0-10 V
0: Start-Stop	2: int. assigned M01
State: inactive	Analogue value: 3.4560 V
Connection: x3: - x2: +	Connection: x3: - x2: +
TR8 MENU P *ON TR9	TR8 MENU P *ON TR9

trigger inputs

analog outputs

- Watchdog function in the event of a failure of ALMEMO® device or computer addressing
- Connection of peripherals via ALMEMO® clamp connectors, cable with anti-kink protective sleeve and strain relief
- Power supply via the ALMEMO® device; in case of the analog output option a mains adapter may also be required.
- Modern, compact housing - also suitable for DIN top-hat rail mounting

On request: ALMEMO® output interface ZA8006RTA4 for connection to the PC (directly or via network).

Technical Data

Trigger inputs	Optocoupler, 4 to 30 V, Ri >3 kohms
Relay	Semiconductor relay 50 V, 0.5 A, 1 ohms
Analog outputs	10 V or 20 mA (programmable)
	16-bit DAC, electrically isolated
0.0 to 10.0 V	0.5m V / digit, Load > 100 kohms
0.0 to 20.0mA	0.1 mA / digit, Load <500 ohms
Accuracy	0.1% of meas. val. +0.1% of final val.
Temperature drift	10 ppm / K
Time constant	100 µs
Power supply	via ALMEMO® device

or mains adapter	ZA1312NA7 (recommended for analog output option)
Current consumption (with 9V supply)	approx. 10 mA, Lighting approx. 15 mA 2 analog outputs approx. 30 mA + 1.6 I _{Out}
Display	Graphics 128 x 64 (55 x 30 mm) Lighting 2 white LEDs
Keypad	7 silicone keys (4 soft-keys)
Housing	127 x 83 x 42 mm (LxWxH) ABS (maximum 70°C), 290 g

Basic version 2 trigger inputs and 4 normally open relays

Options 2 additional relays (normally open) OA8006SH2

Per normally open pair 2 additional normally closed relays
(with normally open relays 2 changeover relays) OA8006OH2

2 analog outputs (common ground), electrically isolated

10 V or 20 mA (programmable) OA8006R02

Possible combinations

1x OA8006SH2 (+2 relays)
or 1x OA8006SH2 (+2 relays) + 1x OA8006R02 (+2 analog outputs)
or 2 x OA8006R02 (+4 analog outputs)

Accessories

Mains unit, 12 V, 1 A

ZA1312NA7

DIN tophat rail mounting

ZB2490HS

Variants

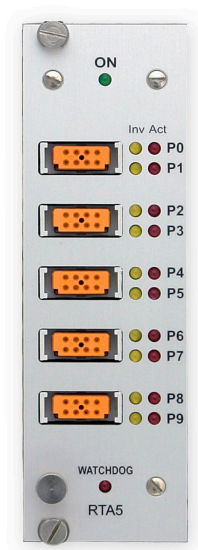
ALMEMO® relay trigger adapter with 2 trigger inputs, 4 normally open relays, DC socket, graphics display, and keypad, including 1.5-meter ALMEMO® connecting cable and 3 ALMEMO® clamp connectors

Order no.

ZA8006RTA3

ALMEMO® Output modules

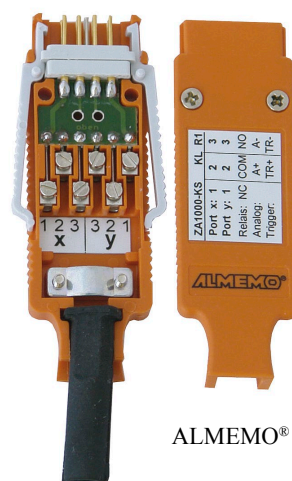
ALMEMO® trigger output interface, ES 5690 RTA5, for ALMEMO® data acquisition systems



Technical Data:

Trigger inputs	Optocoupler 4 to 30 V, $R_i > 3 \text{ kohms}$
Relays	Semiconductor relays 50 V, 0.5 A, 1 ohm
Analog outputs	10 V or 20 mA (programmed) 16 bit DAC, electrically isolated
0.0...10.0 V	0.5 mV/Digit. Load $> 100 \text{ kohms}$
0.0...20.0 mA	0.1 mA/Digit. Load $< 500 \text{ ohms}$
Accuracy	0.1% of meas. val. +0.1% of final val.
Temperature drift	10 ppm/K
Time constant	100 μs
Power supply	via ALMEMO® measuring system
Current consumption	Standard: approx. 10 to 20 mA 2 analog outputs: approx. 15 mA + 1.8·IOut
Module	19" 8-DU (2 slots)

- Universal trigger output interface for ALMEMO® 5690 data acquisition systems
- System (master measuring circuit or CPU module) addressed via an internal SPI bus
- Up to 10 peripheral elements (relays, trigger inputs, analog outputs) each with individually configurable function
- Relay functions, total alarm, assignment to particular limit values, or addressing via interface
- Inverse relay addressing for alarm in the event of power failure
- Relay states shown via LEDs
- Watchdog function in the event of a failure of ALMEMO® device or computer addressing
- Comprehensive trigger features with the aid of command macros, addressing via electrical signals
- Either 2 or 4 analog outputs (10 V or 20 mA programmable) can be assigned to any measuring channels, scalable sub-areas, or alternatively addressing via interface.
- On request : 10 analog outputs per plug-in module (without trigger inputs, without relays)
- Connection of peripherals via ALMEMO® clamp connectors, cable with anti-kink protective sleeve and strain relief
- Power supply via ALMEMO® system.



ALMEMO® clamp connector

Basic version 2 trigger inputs and 4 normally open relays

Options 2 additional relays (normally open) OA8006SH2

Per normally open pair 2 additional normally closed relays
(with normally open relays 2 changeover relays) OA8006OH2

2 analog outputs (common ground), electrically isolated
10 V or 20 mA (programmable) OA8006R02

Possible combinations

2x OA8006SH2 (+4 relays)
or 1x OA8006SH2 (+2 relays) + 1x OA8006R02 (+2 analog outputs)
or 2 x OA8006R02 (+4 analog outputs)

Variants

ALMEMO® relay trigger module - with 2 trigger inputs,
4 normally open relays, and 3 ALMEMO® clamp connectors

Order no.

ES5690RTA5